Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1 (Canceled)

Claim 2 (Currently Amended): A ferroelectric capacitor comprising:

a stepped bottom electrode[[;]] having a planar base electrode with a plurality of projection electrodes ~~formed~~ on the ~~bottom~~ planar base electrode;

a ferroelectric layer ~~formed~~ on the stepped bottom electrode ~~and the projection electrodes~~; and

a top planar electrode ~~formed~~ on the ferroelectric layer,

wherein a thickness of the ferroelectric layer on the projection electrodes is less than a thickness of the ferroelectric layer on the ~~bottom~~ planar base electrode, and

wherein spacing between central portions of each projection electrode has a range from 10% to 20% of a size of the ferroelectric capacitor.

Claim 3 (Currently Amended): A ferroelectric capacitor comprising:

a stepped bottom electrode[[;]] having a planar base electrode with a plurality of projection electrodes ~~formed~~ on the ~~bottom~~ planar base electrode;

a ferroelectric layer ~~formed~~ on the stepped bottom electrode ~~and the projection electrodes~~; and

a top planar electrode ~~formed~~ on the ferroelectric layer,

wherein a thickness of the ferroelectric layer on the projection electrodes is less than a thickness of the ferroelectric layer on the ~~bottom~~ planar base electrode, and

wherein a size of each projection electrode has a range from 5% to 10% of a size of the ferroelectric capacitor.

Claim 4 (Withdrawn-Currently Amended): The ferroelectric capacitor of claim 2, wherein the top planar electrode ~~includes~~ comprises a plurality of second projection electrodes thereon, each of the plurality of second projection electrodes facing respective ones of the plurality of projection electrodes.

Claim 5 (Withdrawn-Currently Amended): The ferroelectric capacitor of claim 2, wherein the projection electrodes are ~~made of~~ bismuth or bismuth alloy.

Claim 6 (Withdrawn-Currently Amended): The ferroelectric capacitor of claim 5, wherein the ~~bottom~~ planar base electrode is ~~made of~~ a metal which includes bismuth.

Claim 7 (Currently Amended): A ferroelectric capacitor comprising:

a stepped bottom electrode[[;]] having a planar base electrode with a plurality of

projection electrodes ~~formed~~ on the ~~bottom~~ planar base electrode;

a ferroelectric layer ~~formed~~ on the stepped bottom electrode ~~and the projection electrodes~~; and

a top planar electrode ~~formed~~ on the ferroelectric layer,

wherein the projection electrodes are arranged spaced apart from each other evenly, and

wherein a thickness of the ferroelectric layer on the projection electrodes is less than a thickness of the ferroelectric layer on the ~~bottom~~ planar base electrode, ~~so that~~ and cores of polarization inversion within the ferroelectric layer extend from the projection electrodes.

Claim 8 (Currently Amended): The ferroelectric capacitor of claim 2, wherein the ~~bottom~~ planar base electrode and the projection electrodes are ~~made of~~ a same material.

Claims 9 – 14 (Canceled)

Claim 15 (Currently Amended): A ferroelectric capacitor comprising:

a first stepped electrode[[;]] comprising a ~~second~~ first planar electrode[[;]] having a plurality of [[third]] projection electrodes on the first planar electrode and spaced apart from each other evenly;

a second planar electrode; and

a ferroelectric layer sandwiched between the first stepped electrode and the second planar electrode, ~~and on the third electrodes~~[[,]]

wherein a thickness of the ferroelectric layer on the [[third]] projection electrodes is less than a thickness of the ferroelectric layer on the second planar electrode, ~~so that~~ and cores of polarization inversion within the ferroelectric layer extend from the [[third]] projection electrodes.

Claims 16-17 (Canceled)

Claim 18 (Currently Amended): The ferroelectric capacitor of claim 15, wherein the first planar electrode and the [[third]] projection electrodes are ~~made by~~ a same material.

Claim 19 (Withdrawn-Currently Amended): The ferroelectric capacitor of claim 15, further comprising additional electrodes on the second planar electrode ~~electrodes~~.

Claim 20 (Withdrawn-Currently Amended): The ferroelectric capacitor of claim 3, wherein the top planar electrode ~~includes~~ comprises a plurality of second projection electrodes thereon, each of the plurality of second projection electrodes facing respective ones of the plurality of projection electrodes.

Claim 21 (Withdrawn-Currently Amended): The ferroelectric capacitor of claim 3, wherein the projection electrodes are ~~made of~~ bismuth or bismuth alloy.

Claim 22 (Withdrawn-Currently Amended): The ferroelectric capacitor of claim 21, wherein the ~~bottom~~ planar base electrode is ~~made of~~ a metal which includes bismuth.

Claim 23 (Withdrawn-Currently Amended): The ferroelectric capacitor of claim 3, wherein the ~~bottom~~ planar base electrode and the projection electrodes are ~~made of~~ a same material.

Claim 24 (Withdrawn-Currently Amended): The ferroelectric capacitor of claim 7, wherein the top planar electrode ~~includes~~ comprises a plurality of second projection electrodes thereon, each of the plurality of second projection electrodes facing respective ones of the plurality of projection electrodes.

Claim 25 (Withdrawn-Currently Amended): The ferroelectric capacitor of claim 7, wherein the projection electrodes are ~~made of~~ bismuth or bismuth alloy.

Claim 26 (Withdrawn-Currently Amended): The ferroelectric capacitor of claim 25, wherein the ~~bottom~~ planar base electrode is ~~made of~~ a metal which includes bismuth.

Claim 27 (Withdrawn-Currently Amended): The ferroelectric capacitor of claim 7, wherein the ~~bottom~~ planar base electrode and the projection electrodes are ~~made of~~ a same material.